

Amendments to the Drawings:

The sheet of drawing attached in the Appendix include amendments to Figs. 6 and 7. These sheets replace the original sheets. The drawings have been amended as follows:

A separator that separates the conductors has been added to Fig. 6. The separator is indicated by reference numeral 90. The amendment to Fig. 6 is supported by, for example, paragraph [0059] on page 12 of the Specification. Also, Figs. 6 and 7 have been amended to include appropriate cross-hatching for the twisted pairs of conductors 58, 60, 62, 64 in Fig. 6 and for the conductor 72 in Fig. 7 that accurately indicates the nature of the materials that are illustrated (37 CFR 1.84(h)(3)). No new matter has been added.

REMARKS

The Office Action mailed April 5, 2005, has been received and the Examiner's comments carefully reviewed. Claims 77, 86, 89, 100, 104, and 114 have been amended. New dependent claims 115 and 120-125 that depend from independent claim 77 have been added. New dependent claim 116 that depends from independent claim 86 has been added. New dependent claim 117 that depends from independent claim 100 has been added. New dependent claims 118 that depends from independent claim 104 has been added. New dependent claim 119 that depends from independent claim 114 has been added. No new matter has been added. Claims 77-125 are currently pending. Favorable reconsideration of this application is requested in view of the following remarks.

Support for Claim Amendments and New Claims

Claims 77, 86, 89, 100, 104, and 114 have been amended as supported by, for example, FIG. 6 of the application and paragraph [0059] on page 12 of the Specification. New dependent claims 115-119 are supported by, for example, FIG. 6 of the application. New dependent claims 120, 122, and 123 are supported by, for example, FIG. 6 and the description on page 10, paragraph [0049] of the current specification. New dependent claim 121 is supported by Fig. 3 and the description on page 5, paragraph [0027] of the current specification. New dependent claim 124 is supported by the description on page 8, paragraph [0043] of the current specification. New dependent claim 125 is supported by the description on page 10, paragraph [0048] of the current specification.

Restriction Requirement

Applicants respectfully submit that the new dependent claims 115-120, 122, 123, and 125 are readable upon the elected species c drawn to the system of figure 6 in view of the Restriction Requirement mailed on November 17, 2004. Although of the newly added claims, dependent claims 121 and 124 are not readable upon the elected species, the Applicants request to leave claims 121 and 124 pending in the application for allowance with the generic claim from which they depend.

Specification

In the Office Action, the Abstract was objected to by the Examiner for being too short. The Abstract has accordingly been amended as seen in the Amendments to the Abstract section of this paper to provide for a more detailed statement of the disclosure. The Specification has also been amended as seen in the Amendments to the Specification section of this paper to assign a reference numeral to the separator now shown in FIG. 6. No new matter has been added. The amendment to the Specification is supported by, for example, paragraph [0059] of the Specification.

Claim Objections

In the Office Action, claim 104 was objected to for lacking sufficient antecedent basis for the phrase "the plurality of twisted pairs." Claim 104 has been amended to recite "the four twisted pairs" instead of the phrase "the plurality of twisted pairs" in accordance with the Examiner's recommendation. No new matter has been added.

Claim Rejections - 35 USC § 103

In the Office Action, claims 77-114 have been rejected over Kotthaus et al. (US 4745238) in view of Arpin et al. (US 5563377).

Claim 77

Independent claim 77, as amended, recites, among other things, a cable having a plurality of twisted pairs of conductors and a jacket defining a central passage in which the twisted pairs of conductors are located. The central passage includes air that occupies the volume between the plurality of twisted pairs of conductors. The jacket includes legs that project inwardly, the legs defining channels thereinbetween. The channels include air which is in fluid communication with the air in the central passage that occupies the volume between the plurality of twisted pairs of conductors.

Unlike the invention of claim 77, Kotthaus et al. fails to teach or suggest a cable jacket with air channels that are in fluid communication with the air in the central passage that occupies the volume between the twisted pairs of conductors. The cable in Kotthaus includes channels

that are completely sealed off from the central chamber that houses the conductors. In column 2, lines 56-63 of Kotthaus et al., it is stated, "The casing 5 comprises an outer cylindrical wall 6, from which five radial walls 7 extend radially inwardly into supporting and sealing engagement with casing 4. Through suitable choice of the radial extrusion pressure the walls 7 form an airtight and liquid tight seal with casing 4 and form together with the casing 4 five air chambers 8 which extend longitudinally by of the line 1." Thus, the air in the channels in Kotthaus et al. is not in fluid communication with the air that occupies the volume between the conductors. The radial walls 7 form airtight seals with the casing 4 of the conductors and therefore the air in the channels is not exposed to the air that is in between the conductors. Therefore, in view of the above, Kotthaus et al. fails to teach or suggest all of the elements set forth in claim 77.

Arpin does not disclose or suggest a jacket with inwardly projecting legs that define channels thereinbetween, wherein the channels include air which is in fluid communication with the air in a central passage that occupies a volume between the plurality of twisted pairs of conductors. Therefore, Arpin et al. fails to remedy the deficiencies of Kotthaus et al. specified with respect to claim 77, and, for at least this reason, claim 77 is believed to be patentable over Kotthaus et al. in view of Arpin et al.

Claims 78-85 and new claims 115 and 120-125 depend from claim 77 and are patentable for at least the same reasons specified with respect to claim 77.

Claim 86

Independent claim 86, as amended, recites, among other things, a cable having a plurality of twisted pairs of conductors and a jacket within which the twisted pairs of conductors are located. The jacket defines interior air channels. The channels define legs thereinbetween that project inwardly toward the central axis of the jacket. The legs are attached to the jacket at outer ends and have free, unattached inner ends.

Unlike the invention of claim 86, Kotthaus et al. fails to teach or suggest a cable jacket with air channels defining legs thereinbetween wherein the legs project inwardly toward the central axis of the jacket and are attached to the jacket at outer ends and have free, unattached inner ends. The cable in Kotthaus et al. includes five radial walls 7 that are defined between the

channels 8 that extend radially inwardly and form a sealing engagement with the casing 4. As noted above, in column 2, lines 56-63 of Kotthaus et al., it is stated, "The casing 5 comprises an outer cylindrical wall 6, from which five radial walls 7 extend radially inwardly into supporting and sealing engagement with casing 4. Through suitable choice of the radial extrusion pressure the walls 7 form an airtight and liquid tight seal with casing 4 and form together with the casing 4 five air chambers 8 which extend longitudinally by of the line 1." Thus, the radial walls 7 defined between the channels 8 in Kotthaus et al. are attached to and form a sealing engagement with the casing 4 and do not have free, unattached inner ends. Therefore, in view of the above, Kotthaus et al. fails to teach or suggest all of the elements set forth in claim 86.

Arpin does not disclose or suggest a cable jacket defining interior air channels wherein the channels define legs thereinbetween that project inwardly toward a central axis of the jacket and wherein the legs have free, unattached inner ends. Therefore, Arpin et al. fails to remedy the deficiencies of Kotthaus et al. specified with respect to claim 86, and, for at least this reason, claim 86 is believed to be patentable over Kotthaus et al. in view of Arpin et al.

Claims 87-88 and new claim 116 depend from claim 86 and are patentable for at least the same reasons specified with respect to claim 86.

Claim 89

Independent claim 89, as amended, recites, among other things, a cable having a plurality of twisted pairs of conductors and a jacket within which the plurality of twisted pairs of conductors is located. The jacket defines interior channels that are circumferentially spaced relative to one another about the plurality of twisted pairs of conductors. The channels define legs thereinbetween that project inwardly toward the central axis of the jacket. The legs are attached to the jacket at outer ends and have free, unattached inner ends. A separator is positioned within the jacket for separating the twisted pairs of conductors.

Unlike the invention of claim 89, Kotthaus et al. fails to teach or suggest a cable jacket with channels defining legs thereinbetween wherein the legs project inwardly toward the central axis of the jacket and are attached to the jacket at outer ends and have free, unattached inner ends. As discussed previously, the cable in Kotthaus et al. includes five radial walls 7 that are

defined by the channels 8 that extend radially inwardly and form a sealing engagement with the casing 4. Thus, the radial walls 7 defined between the channels 8 in Kotthaus et al. do not have free, unattached inner ends.

Furthermore, Kotthaus et al. fails to teach or suggest a separator positioned within the jacket for separating the plurality of twisted pairs of conductors. There is no disclosure in Kotthaus et al. relating to a separator for separating the twisted pairs of conductors within the jacket. Therefore, in view of the above, Kotthaus et al. fails to teach or suggest all of the elements set forth in claim 89.

As mentioned previously, Arpin does not disclose or suggest a cable jacket defining interior channels with legs thereinbetween that project inwardly toward the central axis of the jacket, wherein the legs have free, unattached inner ends. Moreover, Arpin does not disclose or suggest a separator positioned within the jacket for separating the twisted pairs of conductors. Therefore, Arpin et al. fails to remedy the deficiencies of Kotthaus et al. specified with respect to claim 89, and, for at least this reason, claim 89 is believed to be patentable over Kotthaus et al. in view of Arpin et al.

Claims 90-99 depend from claim 89 and are patentable for at least the same reasons specified with respect to claim 89.

Claim 100

Independent claim 100, as amended, recites, among other things, a cable having a plurality of twisted pairs of conductors and a jacket that defines an interior passage with a central region including air and a peripheral region. The plurality of twisted pairs of conductors are positioned within the central region with the air therein occupying a volume between the plurality of twisted pairs of conductors. The peripheral region includes a plurality of channels that are circumferentially spaced relative to one another about the central region. The channels include air, the air in the channels being in fluid communication with the air in the volume of the central region between the twisted pairs of conductors. A separator is positioned within the jacket for separating the twisted pairs of conductors.

Unlike the invention of claim 100, Kotthaus et al. fails to teach or suggest a cable jacket with an interior passage that has a central region including air and peripheral region wherein the central region houses twisted pairs of conductors with the air occupying the volume between the conductors and wherein the peripheral region defines channels with air that are in fluid communication with the air in the volume of central region between the twisted pairs of conductors. As previously discussed, the channels in the cable in Kotthaus et al. are completely sealed off from the central chamber that houses the conductors, and, therefore, are not in fluid communication with the air in the volume of the central chamber between the twisted pairs of conductors. The cable in Kotthaus et al. forms six separate air chambers, five defined by the channels 8 and one defined within the casing 4 surrounding the conductors, whereas the cable featured in claim 100 essentially forms a single interior air passage with the central air region and the peripheral region being in fluid communication with each other.

Furthermore, as discussed previously, Kotthaus et al. fails to teach or suggest a separator that separates the plurality of twisted pairs of conductors. Therefore, in view of the above, Kotthaus et al. fails to teach or suggest all of the elements set forth in claim 100.

As mentioned above, Arpin does not disclose or suggest a cable jacket with an interior passage that has a central region including air and peripheral region, wherein the air in the central region occupies the volume between the conductors and wherein the peripheral region defines channels with air that are in fluid communication with the air in the volume of central region between the twisted pairs of conductors. Moreover, Arpin does not disclose or suggest a separator positioned within the jacket for separating the twisted pairs of conductors. Therefore, Arpin et al. fails to remedy the deficiencies of Kotthaus et al. specified with respect to claim 100, and, for at least this reason, claim 100 is believed to be patentable over Kotthaus et al. in view of Arpin et al.

Claims 101-103 and new claim 117 depend from claim 100 and are patentable for at least the same reasons specified with respect to claim 100.

Claim 104

Independent claim 104, as amended, recites, among other things, a cable having four twisted pairs of conductors twisted around each other to define a core and a jacket that defines an interior air passage with a central region including air and a peripheral region including air. The core is positioned within and is exposed to the air in the central region. The peripheral region includes a plurality of channels with air that are circumferentially spaced relative to one another about the core. The air in the channels is in fluid communication with the air in the central region to which the core is exposed. A separator is positioned within the jacket for separating the twisted pairs of conductors.

As discussed previously, unlike the invention of claim 104, Kotthaus et al. fails to teach or suggest a cable jacket with an interior air passage that has a central air region and a peripheral air region wherein the central air region houses a core of four twisted pairs of conductors, the core being exposed to the air in the central air region and air channels in the periphery region being in fluid communication with the air in the central region to which the core is exposed. The cable in Kotthaus et al. does not have an internal air passage made up of a central air region housing a core and a peripheral air region wherein the air in the two regions are in fluid communication with each other. As discussed previously, the cable in Kotthaus et al. forms six separate air chambers, five defined by the channels 8 and one defined by the casing 4 surrounding the conductors. Unlike the invention of claim 104, in Kotthaus et al., the air in the central region to which the core is exposed to is not in fluid communication with the air in the channels. Unlike the cable disclosed in Kotthaus et al., the cable featured in claim 104 essentially forms a single interior air passage with the central air region and the peripheral air region being in fluid communication with each other.

Furthermore, as discussed previously, Kotthaus et al. fails to teach or suggest a separator that separates the plurality of twisted pairs of conductors. Therefore, in view of the above, Kotthaus et al. fails to teach or suggest all of the elements set forth in claim 104.

Arpin does not disclose or suggest a cable jacket with an interior air passage that has a central air region and a peripheral air region wherein a core of four twisted pairs of conductors is

exposed to the air in the central air region and air channels in the periphery region being in fluid communication with the air in the central region to which the core is exposed. Moreover, Arpin does not disclose or suggest a separator positioned within the jacket for separating the twisted pairs of conductors. Therefore, Arpin et al. fails to remedy the deficiencies of Kotthaus et al. specified with respect to claim 104, and, for at least this reason, claim 104 is believed to be patentable over Kotthaus et al. in view of Arpin et al.

Claims 105-113 and new claim 118 depend from claim 104 and are patentable for at least the same reasons specified with respect to claim 104.

Claim 114

Independent claim 114, as amended, recites, among other things, a cable having a plurality of twisted pairs of conductors and a jacket that defines a single passage with a central region in fluid communication with a peripheral region. The plurality of twisted pairs of data conductors are positioned within the central region. The jacket includes an inner portion and an outer portion with a plurality of projections projecting inwardly from the outer portion of the jacket. The projections have inner unattached ends that define an outer boundary of the central region of the passage. A separator is positioned within the jacket for separating the twisted pairs of conductors.

Unlike the invention of claim 114, Kotthaus et al. fails to teach or suggest a cable jacket with a single passage that has a central region in fluid communication with a peripheral region wherein projections that project inwardly have unattached ends that form an outer boundary of that central region of the single passage. As discussed previously, the cable in Kotthaus et al. includes five radial walls 7 that are defined between the channels 8 that extend radially inwardly and form a sealing engagement with the casing 4. Thus, the cable in Kotthaus et al. forms six separate air chambers, five defined by the channels 8 and one defined by the casing 4 surrounding the conductors. Unlike the cable disclosed in Kotthaus et al., the cable featured in claim 114 includes a single interior passage with a central air region and a peripheral air region. The ends of the projections featured in claim 114 are unattached and they form an outer boundary of the central region of the passage. In sharp contrast, the radial walls 7 defined

between the channels 8 in Kotthaus et al. are in sealing engagement with the casing 4 and do not have unattached inner ends. The walls 7 in Kotthaus et al. form an outer boundary of the casing 4, and not of a central region.

Furthermore, as discussed previously, Kotthaus et al. fails to teach or suggest a separator that separates the plurality of twisted pairs of conductors. Therefore, in view of the above, Kotthaus et al. fails to teach or suggest all of the elements set forth in claim 114.

As mentioned above, Arpin does not disclose or suggest a cable jacket with a single passage that has a central region in fluid communication with a peripheral region wherein projections that project inwardly have unattached ends that form an outer boundary of that central region of the single passage. Moreover, Arpin does not disclose or suggest a separator positioned within the jacket for separating the twisted pairs of conductors. Therefore, Arpin et al. fails to remedy the deficiencies of Kotthaus et al. specified with respect to claim 114, and, for at least this reason, claim 114 is believed to be patentable over Kotthaus et al. in view of Arpin et al.

New claim 119 depends from claim 114 and is patentable for at least the same reasons specified with respect to claim 114.

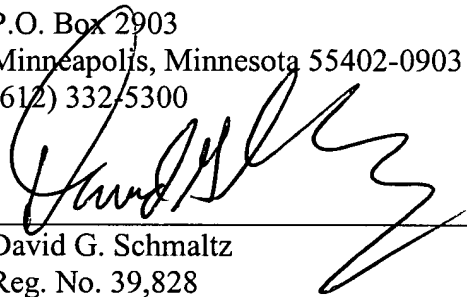
Therefore, the Examiner is respectfully requested to withdraw the above rejection.

It is respectfully submitted that each of the presently pending claims (claims 77-125) is in condition for allowance and notification to that effect is requested. Although certain arguments regarding patentability are set forth herein, there may be other arguments and reasons why the claimed invention is patentably distinct. Applicants reserve the right to raise these arguments in the future. The Examiner is invited to contact Applicants' representative at the below-listed telephone number if it is believed that the prosecution of this application may be assisted thereby.

Respectfully submitted,

MERCHANT & GOULD P.C.
P.O. Box 2903
Minneapolis, Minnesota 55402-0903
(612) 332-5300

Date: July 18, 2005



David G. Schmaltz
Reg. No. 39,828
DGS/AS/jt